

BEST AVAILABLE COPYREMARKSA. Request for Reconsideration

Applicant has carefully considered the matters raised by the Examiner in the outstanding Office Action but remains of the position that patentable subject matter is present. Applicant respectfully requests reconsideration of the Examiner's position based on the Declaration of Mr. Nobumasa Sasa, the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to an actinic ray curable ink having excellent storage stability and safety characteristics. In one of the novel aspects of the invention, the ink is composed of an oxetane compound and either an epoxidized fatty acid ester or an epoxidized fatty acid glyceride.

C. Claim Status and Amendments

Claims 1, 3-8 and 10-14 are presented for further prosecution.

Claim 7 has been amended to depend on claim 1.

BEST AVAILABLE COPY**D. Rejections under 35 USC § 112, second paragraph**

Claim 7 had been rejected as indefinite for being dependent upon a cancelled claim.

Applicant has amended claim 7 to depend on claim 1. It is believed that the amended claims comply with § 112.

E. Rejections under 35 USC § 103(a)

Claims 1, 3-8 and 10-14 had been rejected as being unpatentable over Roth (US 5,889,084) in view of Watanabe (US 6,783,840). Claims 1, 3-6, 8 and 10-14 had been rejected as being unpatentable over Roth (US 5,889,084) in view of Maeda (US 6,805,439).

Applicant had previously submitted the November 2005 Declaration of Mr. Nobumasa Sasa to demonstrate the superiority of the ink of the present invention compared to the inks of the prior art. In the current Office Action, the Examiner had criticized the November 2005 Declaration for not testing the closest prior art. Specifically, the Examiner had stated that the closest prior art is the embodiment of Roth that teaches an ink composed of a colorant, epoxidized soybean oil and a photoinitiator, without the presence of a vinyl ether monomer. The Examiner was therefore not persuaded by the showing of unexpected results in the November 2005 Declaration.

BEST AVAILABLE COPY**1. The enclosed Declaration**

Applicant has performed additional tests to compare the ink of the claimed invention with the ink of Roth which the Examiner stated to be the closest prior art. The additional tests are reported in the enclosed Declaration of Mr. Nobumasa Sasa.

Applicant notes that the enclosed Declaration is presently unexecuted. However, the information contained in the Declaration originated with Mr. Sasa and is therefore entirely reliable. An executed copy of the Declaration will be filed as soon as it is available.

Ms. Sasa prepared four inks. Comparative Ink 2 was prepared in accordance with Example 1 in col. 12 of Roth. Comparative Ink 21 was prepared in the same manner as Comparative Ink 2, except that triethylene glycol divinyl ether was replaced by epoxidized soybean oil. Comparative Ink 22 was prepared in the same manner as Comparative Ink 21, except that the epoxy compound Cyracure UVR 6105 was omitted and only epoxidized soybean oil was employed. Comparative Ink 22 represents the closest prior art determined by the Examiner, namely, an ink composed of a colorant, epoxidized soybean oil and a photoinitiator, without the presence of a vinyl ether monomer.

Inventive Ink 23 was prepared in the same manner as Comparative Ink 21, except that the epoxy compound was replaced

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by an oxetane compound. Inventive Ink 23 differs from Comparative Ink 21 in that Inventive Ink 23 contains an oxetane compound. Inventive Ink 23 falls within the scope of the claimed invention.

Mr. Sasa evaluated Comparative Ink 2, Comparative Ink 21, Comparative Ink 22 and Inventive Ink 23 to determine the viscosity, storage stability and safety. The evaluation results are shown in Table B of the Declaration.

2. Table B demonstrates that the ink of the claimed invention is superior to the ink prepared in accordance with the closest prior art

As shown in Table B, Comparative Ink 22 was not curable.

Mr. Sasa has therefore demonstrated that the closest prior art of Roth determined by the Examiner was not capable of functioning as a curable ink.

In contrast to Comparative Ink 22, Inventive Ink 23 including an oxetane compound was able to cure, and exhibited a viscosity variation before and after storage of less than 2.0 mPa·s (A rating) and no observable damage to the skin (A rating). Table B therefore demonstrates the superiority of the claimed invention compared to the ink of Roth.

Applicant respectfully submits that the enclosed Declaration demonstrates that the ink of the present invention

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is superior to the ink of Roth and to the ink of Roth including the oxetane compound of Watanabe or Maeda.

3. Table B demonstrates that Roth teaches away from the invention

The Examiner stated that the closest prior art taught by Roth is an ink composed of epoxidized soybean oil without a vinyl ether monomer.

As a starting point to prepare the inks of the enclosed Declaration, Mr. Sasa prepared Comparative Ink 2 based on Example 1 of Roth. Comparative Ink 2 contains triethylene glycol divinyl ether. Next, Mr. Sasa prepared Comparative Ink 21 by replacing the triethylene glycol divinyl ether of Comparative Example 21 with epoxidized soybean oil. Comparative Ink 2 and Comparative Ink 21 were evaluated.

Table B of the Declaration demonstrates that the viscosity of Comparative Ink 21 is higher than the viscosity of Comparative Ink 2. Moreover, the viscosity of Comparative Ink 21 is outside the scope of the present invention. Thus, by replacing triethylene glycol divinyl ether of the examples of Roth with epoxidized soybean oil, Mr. Sasa has shown that the viscosity of the ink increases.

As a result of the increase in viscosity, Applicant submits that Roth teaches away from the present invention. Applicant

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takes this position because the ink of the claimed invention requires a viscosity of not more than 50 mPa·s, and employing epoxidized soybean oil in the examples of Roth as suggested by the Examiner actually leads one away from the claimed viscosity range.

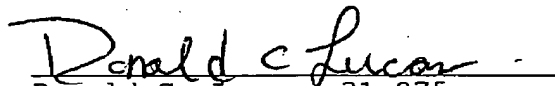
F. Conclusion

In view of the foregoing and the enclosed, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

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Encl: Declaration of Mr. Nobumasa Sasa
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